ON THE OCCURRENCE OF THE GENUS *PALÆCHINUS* IN THE UPPER SILURIAN ROCKS OF NEW SOUTH WALES.

By John Mitchell.

The occurrence of echinoids in Palæozoic rocks is extremely rare, and those recorded have chiefly come from the Carboniferous, from which eight species have been described, all from Ireland and North America.* Two species have been described from Upper Silurian rocks, both of which are referred to the genus *Palæchinus;* but the fossils from which these were determined were fragmentary; and some eminent palæontologists seem to doubt whether the occurrence of echinoids in Silurian rocks has been satisfactorily established.† Therefore to establish beyond doubt their occurrence in the Silurian system of New South Wales would be of more than local interest. For this reason I am led to describe and figure a fragment of a fossil which to me appears clearly to belong to the *Palæchinidæ.*

Class ECHINODERMATA.

Order Perischoechinidæ, McCoy (*Tesselata* Pom.).

Family Palæchinidæ, McCoy.

Genus Palæchinus, Scouler.

Palæchinus sp.

Our fossil consists of a fragment of the middle part of an interambulacral area of four rows of plates. Of the two median rows, each contains four whole plates and a fragment of a fifth, and in each of the outer rows there are four fragmentary plates.

---

* Zittel. Handbuch der Palæontologie.

† H. Alleyne Nicholson, M.D., D.Sc., M.A., &c. The Ancient Life History of the Earth. 1876, p. 105.

Sp. Char.—Plates : Longer axis between the angular points in the larger plates equals 17-20 ninety-sixths of an inch, with a width of thirteen ninety-sixths between the parallel edges is very constant, highly granulated and tubercled, subconvex, edges firmly attached, sutures distinct; tubercles apparently seven on each, one central and the others peripheral, being placed adjacent to the angles, but this arrangement is only visible upon one or two of the most perfect plates. The contour of the whole is convex.

× 2/1

Obs.—This fossil in size of plates agrees with *P. ellipticus*, McCoy, from the Carboniferous of Ireland, but the tubercles are more pronounced and less in number in the former. That it is not a cystidean is plain by the absence of the ridges from the angles to the central point and of the parallel striation so characteristic of the plates of these fossils, as well as by the absence of any resemblance of the plates to the pyramidal form.

Its separation from the Crinoidea seems equally clear by the distinct tuberculation of the plates of the former and by their uniformity of character.

The plates of the calyx of *Platycrinus* are numerous, hexagonal and of varying size ; but they increase rapidly in dimensions towards the base and are void of tuberculation; and thus disagree with the fossil under consideration.

In the absence of ambulacral and genital plates and other parts, it must be admitted that the determination is not altogether beyond doubt. I therefore refrain from giving it specific rank.

Loc.—Middle Trilobite Bed = (? Wenlock); Yass Beds (David); Hume Beds (Jenkins). Bowning Village, County Harden.